

What is claimed is:

1. A method for processing a synchronous message at an asynchronous radio network in an asynchronous mobile communication system including an asynchronous mobile station and the asynchronous radio network, the method comprising the steps of:

a) when a synchronous core network is interlocked with the asynchronous radio network, generating a system information block based on header information provided from the synchronous core network;

b) formatting the generated system information block into a system information message; and

c) transmitting the system information message to the asynchronous mobile station via a predetermined channel.

2. The method as recited in claim 1, wherein the predetermined channel is a broadcast control channel.

3. The method as recited in claim 1, wherein the step a) includes the step of:

a1) formatting a user zone identification message that is used in a synchronous system into the system information block.

4. The method as recited in claim 3, wherein the step a1) includes the steps of:

a11) classifying the user zone identification message

into first information related to a radio resource and first information unrelated to the radio resource.

5. The method as recited in claim 4, wherein the system  
information block is generated based on the first information  
unrelated to the radio resource.

6. The method as recited in claim 1, wherein the step a)  
further includes the step of:

10 a2) formatting a private neighbor list message that is  
used in the synchronous system into the system information  
block.

15 7. The method as recited in claim 6, wherein the step a2)  
includes the steps of:

a21) classifying the private neighbor list message into  
second information related to the radio resource and second  
information unrelated to the radio resource.

20 8. The method as recited in claim 7, wherein the system  
information block is generated based on the second information  
unrelated to the radio resource.

25 9. The method as recited in claim 1, wherein the step a)  
further includes the step of:

a3) formatting a system parameters message that is used  
in the synchronous system into the system information block.

10. The method as recited in claim 9, wherein the step  
a3) includes the step of:

a31) classifying the system parameters message into third  
5 information related to the radio resource and third  
information unrelated to the radio resource.

11. The method as recited in claim 10, wherein the system information block is generated based on the third information unrelated to the radio resource.

12. The method as recited in claim 1, wherein the step a) further includes the step of:

a4) formatting an extended global service redirection message that is used in the synchronous system into the system information block.

13. The method as recited in claim 12, wherein the step  
a4) includes the step of:

20 a41) classifying the extended global service redirection message into fourth information related to the radio resource and fourth information unrelated to the radio resource.

14. The method as recited in claim 13, wherein the system  
25 information block is generated based on the fourth information  
unrelated to the radio resource.

15. The method as recited in claim 1, wherein the step a)  
further includes the step of:

a5) formatting an extended system parameters message that  
is used in the synchronous system into the system information  
5 block.

16. The method as recited in claim 15, wherein the step  
a5) includes the steps of:

a51) classifying the extended system parameters message  
10 into fifth information related to the radio resource and fifth  
information unrelated to the radio resource.

17. The method as recited in claim 16, wherein the system  
information block is generated based on the fifth information  
15 unrelated to the radio resource.

18. The method as recited in claim 1, wherein the step a)  
further includes the step of:

a6) formatting a global service redirection message that  
20 is used in the synchronous system into the system information  
block.

19. The method as recited in claim 18, wherein the step  
a6) includes the step of:

a61) classifying the global service redirection message  
25 into sixth information related to the radio resource and sixth  
information unrelated to the radio resource.

20. The method as recited in claim 19, wherein the system information block is generated based on the sixth information unrelated to the radio resource.

5

~~21.~~ A method for processing a synchronous message at an asynchronous mobile station in an asynchronous mobile communication system, wherein the asynchronous mobile station and an asynchronous radio network are included, the method comprising the steps of:

- a) receiving a system information block transmitted via a broadcast control channel;
- b) determining an operating type of a core network;
- c) when the operating type of the core network is synchronous, selecting the system information block from a system information message;
- d) analyzing the selected system information block;
- e) if the selected system information block is related to a message used in a synchronous system, storing information related to the message in a synchronous call control (CC) entity and a synchronous mobility management (MM) entity; and
- f) if the selected system information block is unrelated to the message used in the synchronous system, storing information related to a radio resource in a radio resource control (RRC) entity.

22. The method as recited in claim 21, wherein the step

e) includes the step of:

if the selected system information block includes information related to a user zone identification message, storing the information related to the user zone  
5 identification message in the synchronous call control (CC) entity and the synchronous mobility management (MM) entity.

23. The method as recited in claim 21, wherein the step  
e) further includes the step of:

10 if the selected system information block includes information related to a private neighbor list message, storing the information related to the private neighbor list message in the synchronous call control (CC) entity and the  
synchronous mobility management (MM) entity.

15 24. The method as recited in claim 21, wherein the step  
e) further includes the step of:

if the selected system information block includes information related to a system parameters message, storing  
20 the information related to the system parameters message in the synchronous call control (CC) entity and the synchronous mobility management (MM) entity.

25 25. The method as recited in claim 21, wherein the step  
e) further includes the step of:

if the selected system information block includes information related to an extended global service redirection

message, storing the information related to the extended global service redirection message in the synchronous call control (CC) entity and the synchronous mobility management (MM) entity.

5

26. The method as recited in claim 21, wherein the step  
e) further includes the step of:

if the selected system information block includes information related to an extended system parameters message, storing the information related to the extended system parameters message in the synchronous call control (CC) entity and the synchronous mobility management (MM) entity.

10 27. The method as recited in claim 21, wherein the step  
e) further includes the step of:

if the selected system information block includes information related to a global service redirection message, storing the information related to the global service redirection message in the synchronous call control (CC) entity and the synchronous mobility management (MM) entity.

20 28. A method for generating a system information block in an asynchronous mobile communication system including an asynchronous mobile station and an asynchronous radio network, wherein a core network is interlocked, the method comprising the steps of:

a) determining an operating type of the core network;

- b) combining information fields for generating the system information block;
- c) determining the operating type of the core network related to the combined information fields; and
- 5 d) establishing an effective area which includes any one of a cell radius and a radius of a URA (UMTS registration area) including a plurality of cells, an update cycle and a user equipment (UE) mode.

10 29. The method as recited in claim 28, wherein the step  
c) includes the step of:

15 c1) when the operating type of the core network is asynchronous, determining the operating type of the core network related to the combined information fields based on a core network (CN) type criteria.

30. The method as recited in claim 29, wherein the step  
d) includes the steps of:

20 d1) defining the effective area wherein the combined information fields are used, based on an area scope criteria;

d2) determining the update cycle of the combined information fields, based on a modification frequency criteria; and

25 d3) determining the UE mode wherein the combined information fields are used, based on a UE mode criteria.

31. The method as recited in claim 29, wherein the core

network related to the combined information fields is an asynchronous global system for mobile communications-mobile application part (GSM-MAP).

5           32. The method as recited in claim 30, wherein the effective area is determined based on a characteristic of the combined information fields.

10           33. The method as recited in claim 30, wherein the step  
d2) includes the steps of:

15           d21) analyzing the characteristic and a utility of the combined information fields;

d22) if the combined information fields are information related to a radio resource, determining the update cycle having a short cycle time; and

15           d23) if the combined information fields are information unrelated to the radio resource, determining the update cycle having a long cycle time.

20           34. The method as recited in claim 30, wherein the step  
d3) includes the step of:

25           determining whether the combined information fields are used in an idle mode or a connected mode of the asynchronous mobile station.

25           35. The method as recited in claim 28, wherein the step  
b) further includes the step of:

when the type of the core network is a synchronous American national standard institute-41 (ANSI-41) core network, combining new information fields for generating the system information block.

5

36. The method as recited in claim 35, wherein the step  
c) further includes the steps of:

c2) determining whether the combined new information fields are related to an asynchronous system or a synchronous system; and

c3) if the combined new information fields are the information fields related to an asynchronous system, determining the type of the core network related to the combined new information fields based on the CN type criteria.

37. The method as recited in claim 36, wherein the step  
d) further includes the steps of:

d4) defining the effective area wherein the combined new information fields are used, based on the area scope criteria;

d5) determining the update cycle of the combined new information fields, based on the modification frequency criteria; and

d6) determining the UE mode wherein the combined new information fields are used, based on the UE mode criteria.

25

38. The method as recited in claim 36, wherein the type of the core network related to the combined new information

fields is the asynchronous GSM-MAP core network.

39. The method as recited in claim 37, wherein the effective area is determined, based on a characteristic of the combined new information fields.

5

40. The method as recited in claim 37, wherein the step d5) includes the steps of:

d51) analyzing the characteristic and a utility of the combined new information fields;

10 d52) if the combined new information fields are information related to a radio resource, determining the update cycle having a short cycle time; and

15 d53) if the combined new information fields are information unrelated to the radio resource, determining the update cycle having a long cycle time.

41. The method as recited in claim 37, wherein the step d6) includes the step of:

20 determining whether the combined new information fields are used in the idle mode or the connected mode of the asynchronous mobile station.

42. The method as recited in claim 36, wherein the step c3) further includes the step of:

25 c4) if the combined new information fields are the information fields related to a synchronous system, determining the type of the core network related to the

combined new information fields based on the CN type criteria.

43. The method as recited in claim 42, wherein the step  
d) further includes the steps of:

5 d7) defining the effective area wherein the combined new  
information fields are used, based on the area scope criteria;

d8) determining the update cycle of the combined new  
information fields, based on the modification frequency  
criteria; and

10 d9) determining the UE mode wherein the combined new  
information fields are used, based on the UE mode criteria.

15 44. The method as recited in claim 42, wherein the core  
network related to the combined new information fields is the  
synchronous ANSI-41 core network.

20 45. The method as recited in claim 43, wherein the effective area is determined, based on the characteristic of  
the combined new information fields.

46. The method as recited in claim 43, wherein the step  
d8) includes the steps of:

d81) analyzing the characteristic and the utility of the  
combined new information fields;

25 d82) if the combined new information fields are  
information related to the radio resource, determining the  
update cycle having the short cycle time; and

d83) if the combined new information fields are information unrelated to the radio resource, determining the update cycle having the long cycle time.

5           47. The method as recited in claim 43, wherein the step  
d9) includes the step of:

              determining whether the combined new information fields are used in the idle mode or the connected mode of the asynchronous mobile station.

10